



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,327	07/08/2003	Dae Young Lee	9242-000029	9350

27572 7590 12/21/2005

HARNES, DICKEY & PIERCE, P.L.C.  
P.O. BOX 828  
BLOOMFIELD HILLS, MI 48303

EXAMINER

MICHENER, JENNIFER KOLB

ART UNIT PAPER NUMBER

1762

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/615,327

Applicant(s)

LEE ET AL.

Examiner

Jennifer K. Michener

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 4, 5 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. The objection to claim 2 is withdrawn based on amendments.

### ***Claim Rejections - 35 USC § 112***

2. Claims 1-3 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Examiner maintains the rejections of the previous office action. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Steele et al. (5,264,250).

Examiner maintains the rejection of the previous office action.

### ***Response to Arguments***

4. Applicant's arguments filed 10/13/2005 have been fully considered but they are not persuasive.

Applicant argues that the claimed invention obtains a hydrophilic porous structure by using a hydrophilic binder, regardless of whether the solid particles are hydrophilic,

Art Unit: 1762

whereas, it is argued, the Steele reference uses hydrophilic solid particles. It is therefore stated that when the solid particles are hydrophilic (as is the case in Steele) and the binder is not hydrophilic, the surface loses the hydrophilic properties.

Examiner disagrees with this analysis.

Steele treats the surface of a wet surface heat exchanger to render it porous and hydrophilic by coating with a composition, the composition comprising a binder and micron-sized solid particles, as outlined in the previous office action.

Examiner notes that the hydrophilic inorganic compound solid particles may be silica. Therefore, Steele teaches that silica is hydrophilic. Additionally, the binder of Steele may be made of glass or silica. Therefore, the binder of Steele must also be hydrophilic. Furthermore, the claim does not exclude the possibility that the hydrophilicity of the coating may be obtained through the use of both hydrophilic particles and hydrophilic binder.

Additionally, Steele teaches that the coated surface of his invention is porous and hydrophilic. Therefore, using Applicant's logic, above (that if the particles are hydrophilic and the binder is not hydrophilic, the surface loses the hydrophilic properties), Steele's binder must be hydrophilic, as required by the claims, because if it weren't, the surface would lose its hydrophilic properties.

Since Steele teaches all limitations of Applicant's claims, the same hydrophilic porous coating structure would inherently be obtained.

Applicant's arguments regarding the effects of particle size are moot because Steele teaches the particle sizes claimed, therefore Steele would achieve the same outcome as Applicant.

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

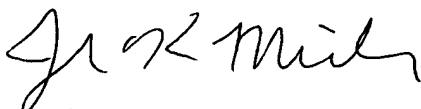
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer K. Michener whose telephone number is (571) 272-1424. The examiner can normally be reached on Mondays, Tuesdays, and Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on 571-272-1423. The fax phone

Art Unit: 1762

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer Michener  
Primary Patent Examiner  
Art Unit 1762  
December 18, 2005